Armed Services Blood Program

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References

- *NAVMED P-6530* **Joint Blood Program Handbook**

- *OPNAVINST 6530.4B draft* **DON Blood Program**

- *NAVMED P-5123* **Operational Procedures for Military BDCs & ASWBPLs**

- *OPNAVINST 6530.2C* **Donor Support**

ASBPO

Joint Health Agency to monitor implementation of blood program policies established by the ASD(HA) and to coordinate the blood programs of the military services.

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Blood Program Coordination

ASBP Elements

- Service Blood Program Offices (SBPO)
- Blood Donor Centers (BDC)
- Armed Services Whole Blood Processing Labs (ASWBPL)
- Joint Blood Program Offices (JBPO)
- Area Joint Blood Program Offices (AJBPO)
- Blood Transshipment Centers (BTC)
- Blood Product Depots (BPD)
- Blood Supply Units (BSU)
- Medical Treatment Facilities (MTF)

Blood Products

- **Red Blood Cells - Liquid**
  - Expiration 35 Days (CPDA-1) or 42 Days (Additive)
  - Temperature 1 to 6C (Storage) or 1 to 10C (Shipment)
- **Red Blood Cells - Frozen**
  - Expiration 10 Years (Licensed) or 21 Years (Research)
  - Temperature < -65C (Storage) or < -40C (Shipment)
- **Fresh Frozen Plasma/ or Solvent Detergent Plasma**
  - Expiration 1 Year, Stored/Shipped At < -18C
- **Platelets**
  - Expiration 5 Days, Stored /Shipped At 20-24C

BLOOD PRODUCTS

PRODUCT	UNIT OF ISSUE	SHELF LIFE FOR STORAGE	FOR TRANSFUSION	ECHELON AVAILABLE	DISTRIBUTION +/- O	A	B	AB
LIQUID RED BLD CELLS	APPROX. 250 mL	35 DAYS (CPDA-1) 42 DAYS (ADSOL)	35 DAYS (CPDA-1) 42 DAYS (ADSOL)	ECHELON II	100%	-	-	
				ECHELON III&IV	50%	40%	10%	
FROZEN/ DEGLYC OLIZED RED BLD CELLS	APPROX. 250 mL	10 YEARS	3 DAYS (POST-WASH)	ECHELON III & ECHELON IV	100%	-	-	
FRESH FROZEN PLASMA	APPROX. 250 mL	1 YEAR	24 HRS POST-THAW	ECHELON III AND ECHELON IV	-	50%	25%	25
PLATELET CONCEN-TRATE	APPROX. 60 mL	5 DAYS	4 HRS POOL	ECHELON III AND ECHELON IV	50%	50%		

BLOOD BANK PROCEDURES BY TREATMENT LEVEL

TREATMENT LEVEL	BLOOD PRODUCT	ABO & Rh GROUP	TRANSFUSION SERVICE PROCEDURES	STORAGE CAPACITY	BLOOD SUPPLY
1st RESPONSE	NONE	NONE	NONE	NONE	NONE
FORWARD SURGERY	RED BLOOD CELLS	O Rh + -	NONE	50 UNITS RBC PER MED FLD REFRIGERATOR	BSU OR THEATER HOSP
THEATER HOSPITAL CSH ATH FH Ships	RED BLOOD CELLS	O, A, B Rh + -	ABO/Rh GROUP. PATIENT AND DONOR RBCs ** IMED. SPIN CROSSMATCH	480 UNITS LIQUID RBCs CSH/ATH/FH 840/LHD/LHA 2000/Hosp Shp	BSU
	FROZEN/ DEGLYCEROLIZED RBC*	O Rh + -	N/A	400 UNITS FROZEN/ LH or Hosp Shp	BSU OR BPD
	FRESH FROZEN PLASMA (FFP)*	A, B, AB Rh + -	N/A	20 UNITS	BSU
	PLATELET CONCENTRATE*	0, A Rh + -	N/A	5 UNITS	BSU

DEFINATIVE CARE IN CONUS MTF OR OTHER MEDICAL CENTER WITH BROAD TRANSFUSION MEDICINE CA

* NOT AVAILABLE AT EVERY MTF ** NOT NECESSARY IF ASWBPL HAS VERIFIED THE ABO

From Donor to Final Product

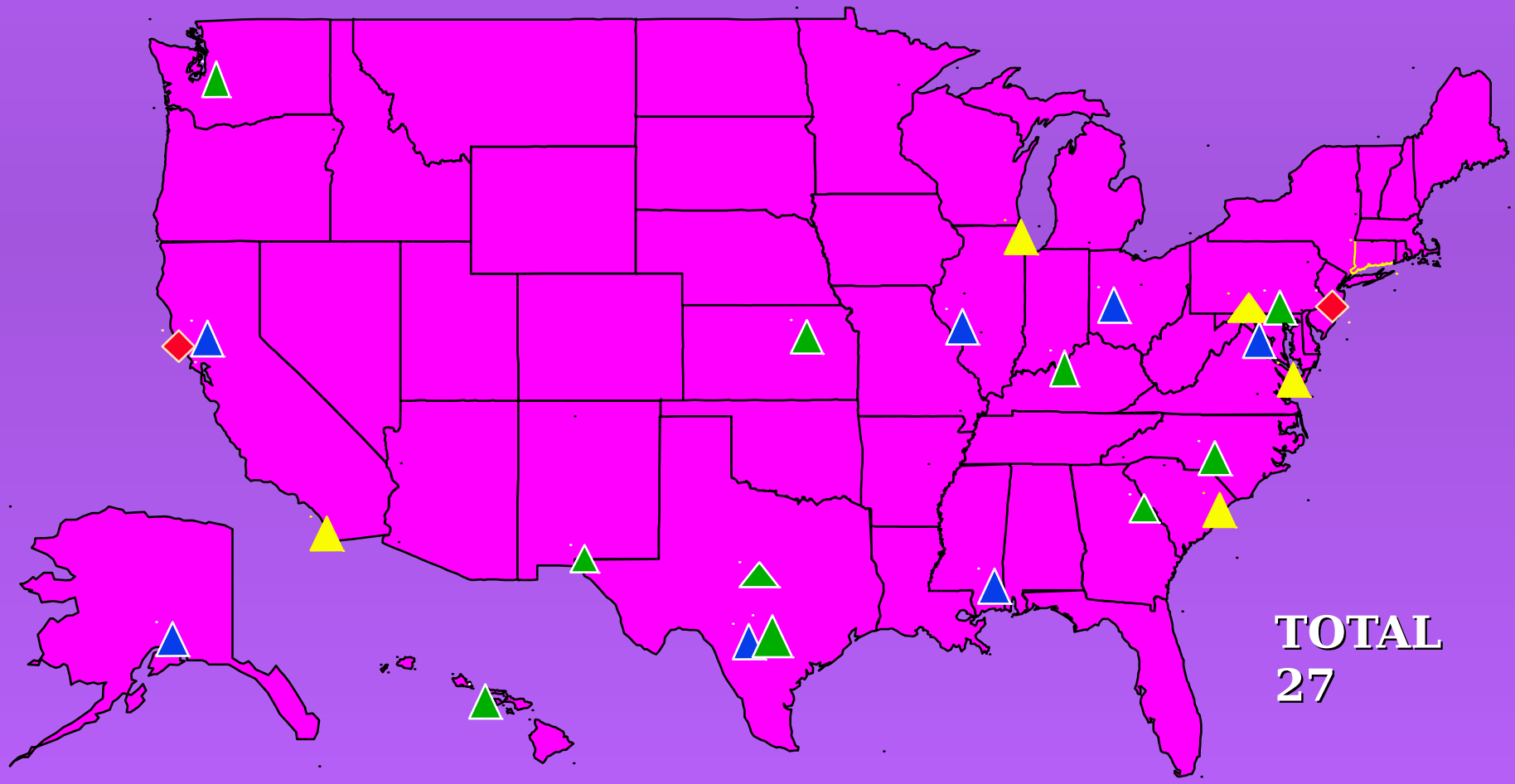
0,000 Blood Collections
om Military, Dependents
and DoD Civilians

Armed Services Blood Donor Centers

- Collect over 120,000 units per year from volunteers (Active Duty, Dependents, and DoD Civilians)
- Provides blood to meet peacetime needs and contingency/special operations requirements (Bosnia, Saudi Arabia, Haiti, Honduras, etc)
- Requires Command Support to encourage donations
- All blood donor centers licensed by the Food and Drug Administration
- Contingency Planning - 72 hrs minimum time from activation until first units available for shipment. Shelf stock available within 24 hrs

Armed Services Blood Donor Centers

- ASWBPL
- USA 10
- USN 5
- USAF 7



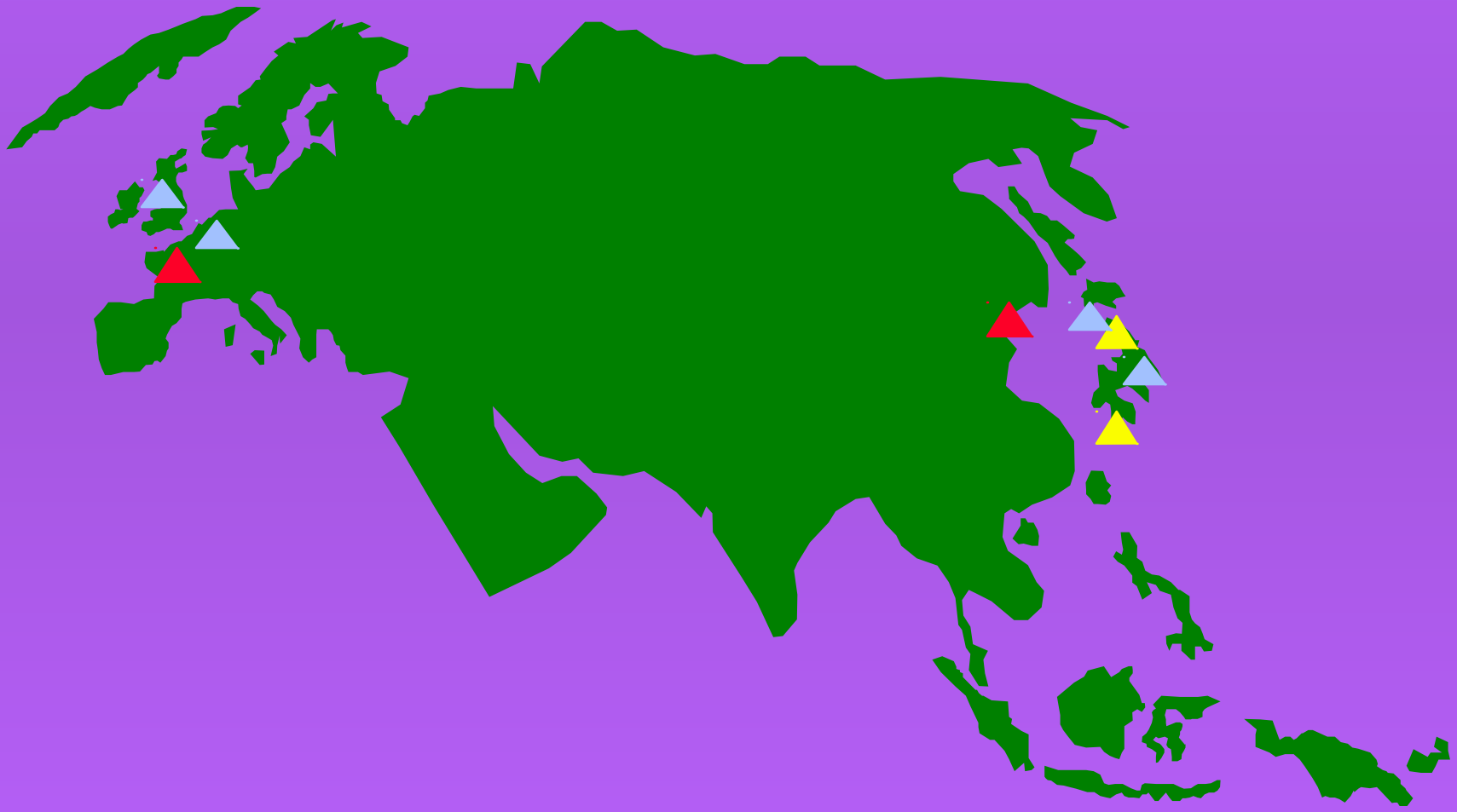
TOTAL 27

Armed Services Blood Donor Centers - Overseas

USA 2

USN 2

USAF 4



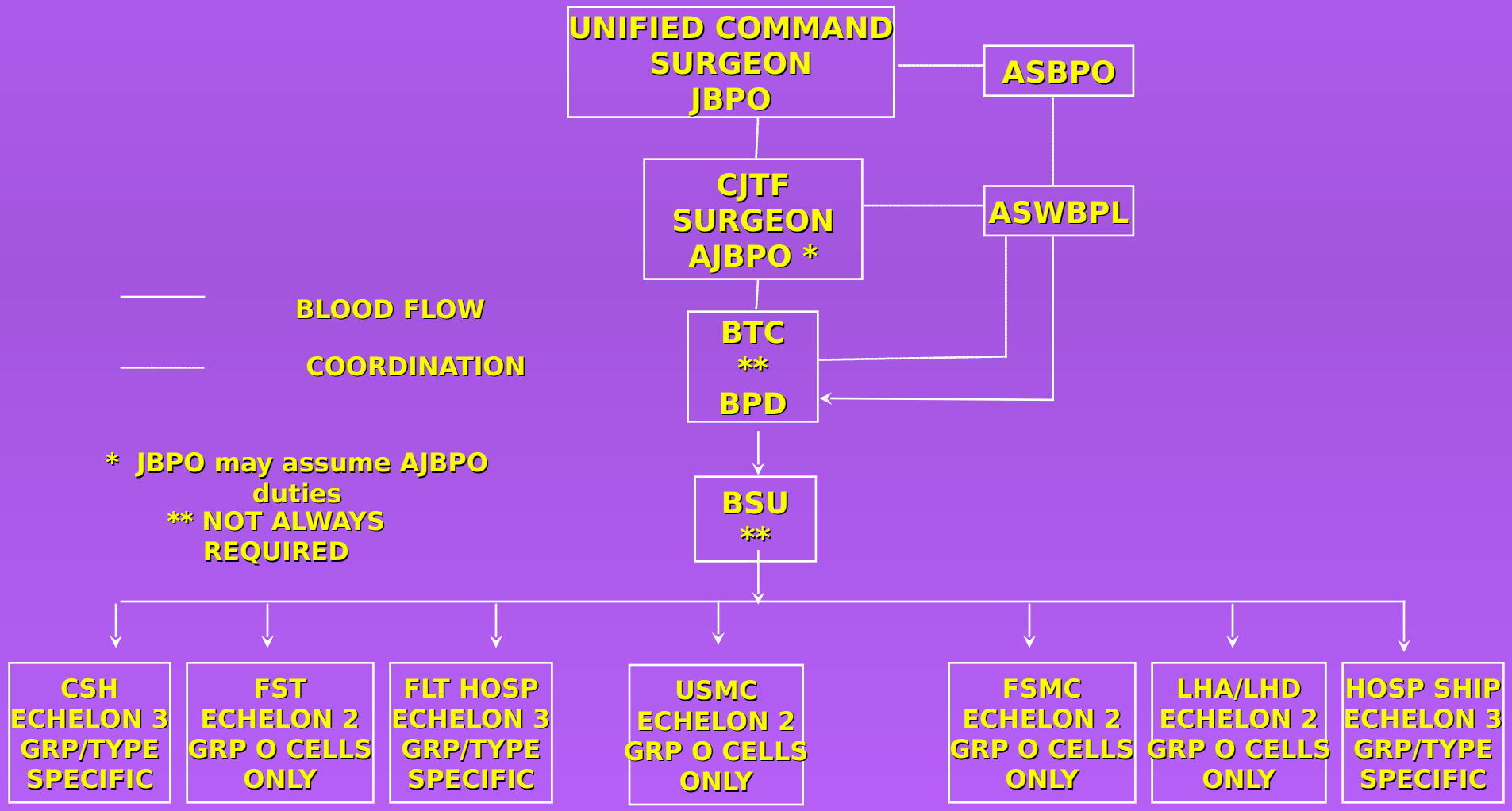
Unified Command
Joint Blood Program Office (JBPO)

- Command Surgeon's Staff
- Functions
  - Enforce DoD Blood Program Policies
  - Coordinate Component Blood Programs
  - Plan and Execute Blood Program Exercises and Operations
  - Single Manager - Theater Blood Distribution System

Area Joint Blood Program Office (AJBPO)

- Assigned Geographical Area by JBPO
- Functions
  - Enforce DoD Blood Program Policies
  - Coordinate Component Blood Programs
  - Plan and Execute Blood Program Exercises
  - Coordinate blood Management with JBPO
  - Single Manager - Area Blood Distribution System

JOINT BLOOD PROGRAM
CONCEPT OF OPERATIONS

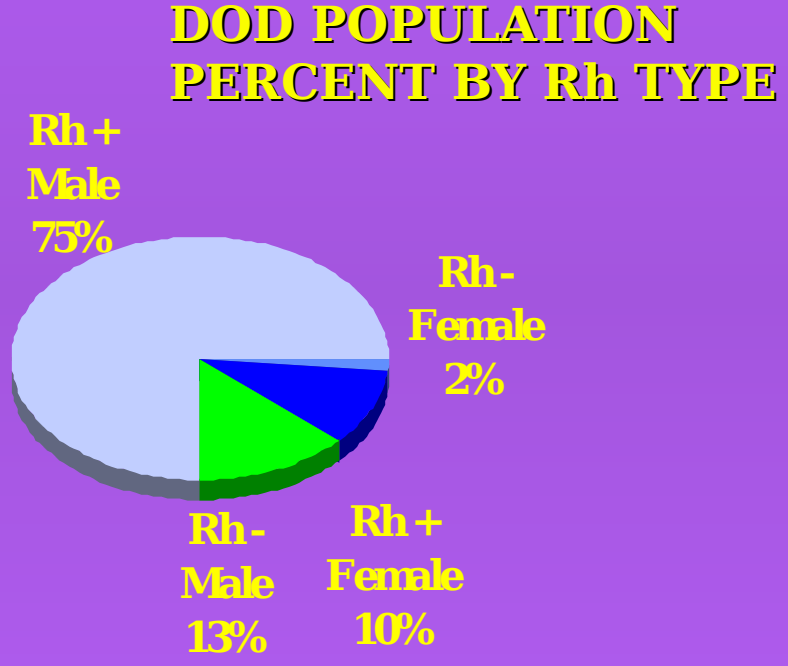


Unified Command Daily Blood Requirements

- Requirements Set By Unified Commands
  - USEUCOM
  - USPACOM
  - USCENTCOM
  - USSOUTHCOM
  - USACOM
- Planning Factors
  - 4.0 Units PRBC Per WIA/NBI
  - .08 Units FFP Per WIA/NBI
  - .04 Units Platelets Per WIA/NBI

Emergency Transfusions at the Second Echelon of Medical Care

- During contingencies, the Services will provide Rh negative packed cells to Rh negative male and female patients based on the Rh blood type on the ID card or Tag



Rh+ (Rh POSITIVE) Rh- (Rh NEGATIVE)
AS OF DEC 1993

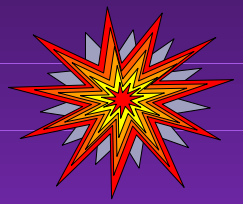
Reporting Requirements

- **Communication Modes - Dependent on Classification**
  - **Message Traffic**
  - **Secure/Unsecure Phone - Voice Template**
  - **Automation - EMAIL, DBSS**
  - **Courier**

Armed Services Blood Program

OPERATIONS OVERVIEW TIME CONSIDERATIONS

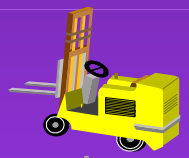
DELIBERATE PLANNING



C-day C+1 C+2 ALD C+3 C+4 EAD C+5 C+6 C+7 C+8 C+9 C+10 LAD-RDD

Date of Notification

Shelf Stocks from BDCs arrive at ASWBPLs

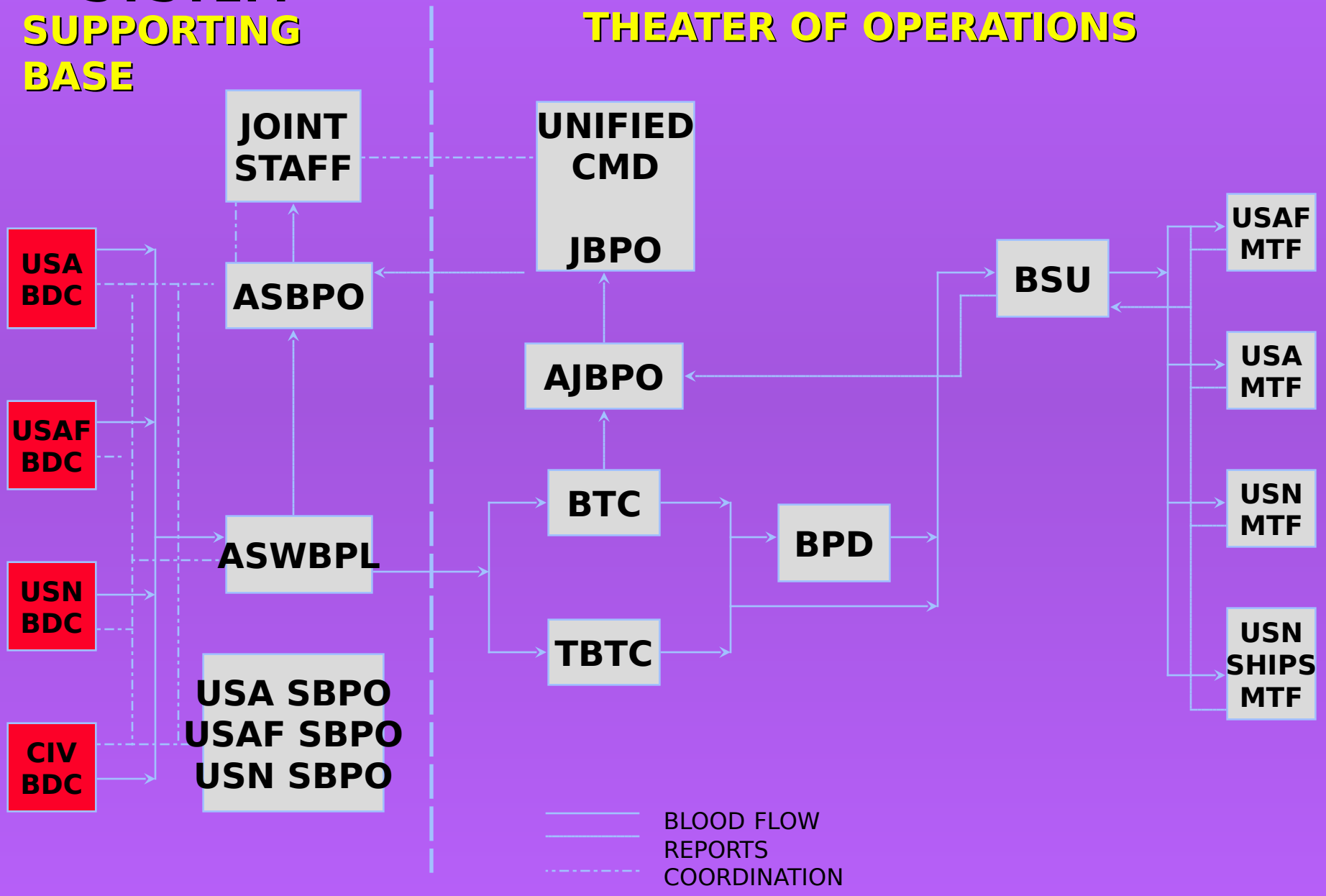


Available to load Date

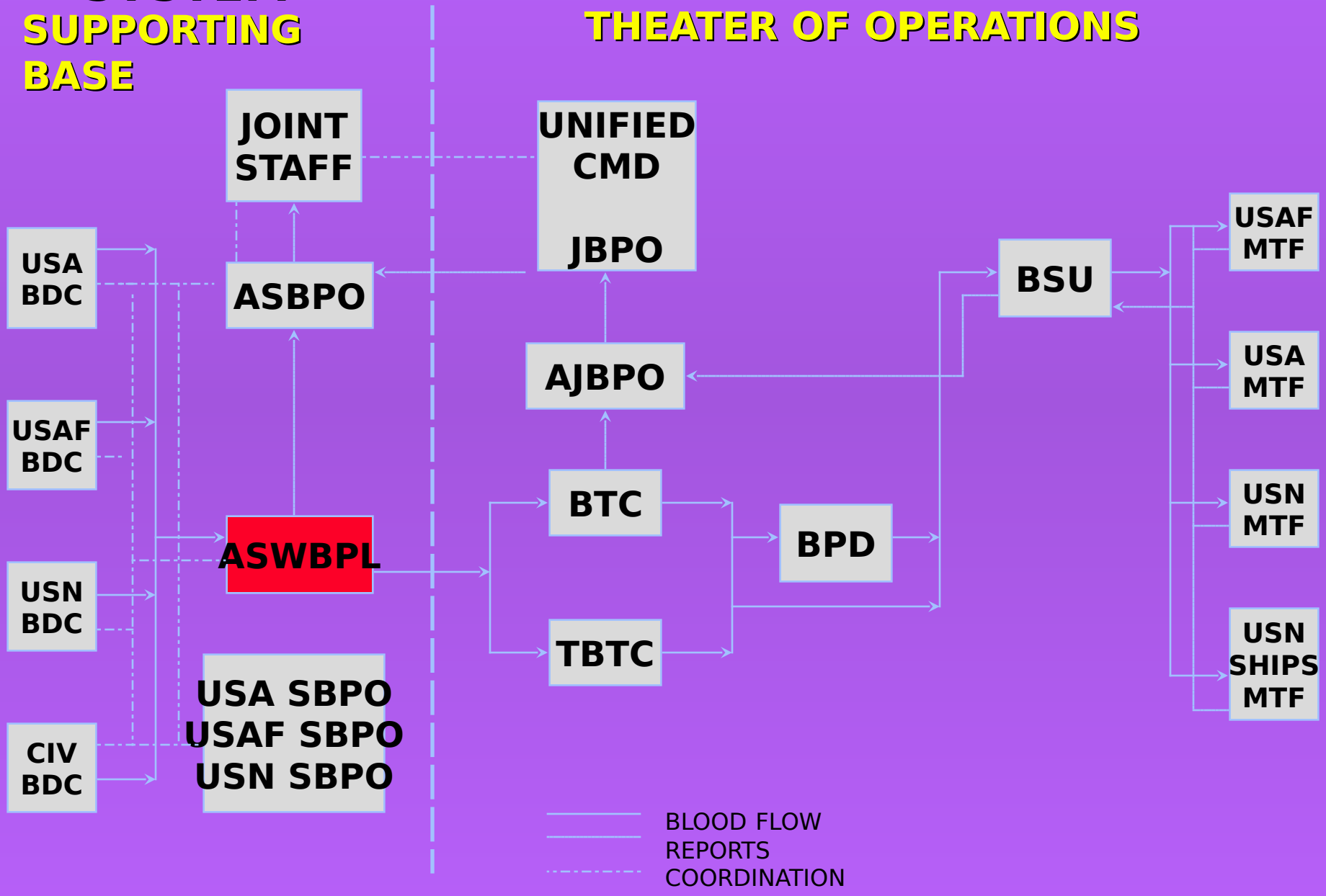
Earliest Arrival Date

Latest Arrival Date
Required Delivery Date

ARMED SERVICES BLOOD DISTRIBUTION SYSTEM



ARMED SERVICES BLOOD DISTRIBUTION SYSTEM

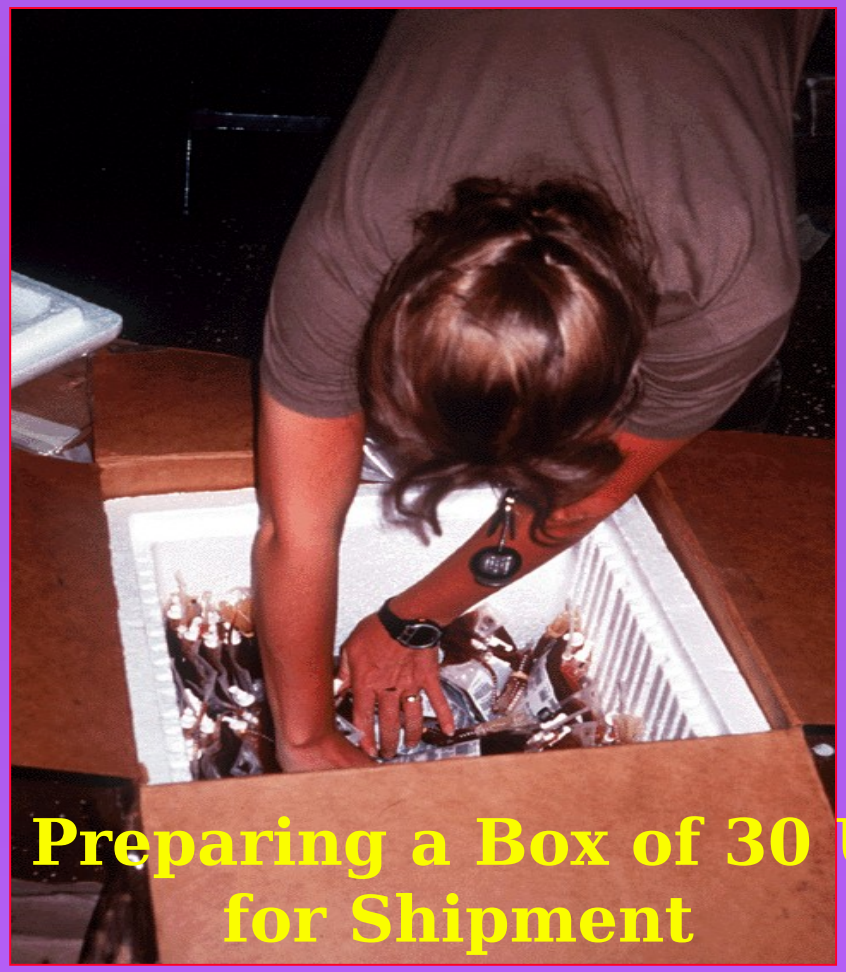


Armed Services Whole Blood Processing Laboratory (ASWBPL)

- **Locations**
  - ASWBPL East, McGuire AFB, NJ
  - ASWBPL West, Travis AFB, CA
- **Functions**
  - Confirm Blood Groups and Types
  - Contingency Storage 250 RBC Units
  - Ship Blood Products to Unified Commands
  - Store Frozen Red Blood Cells

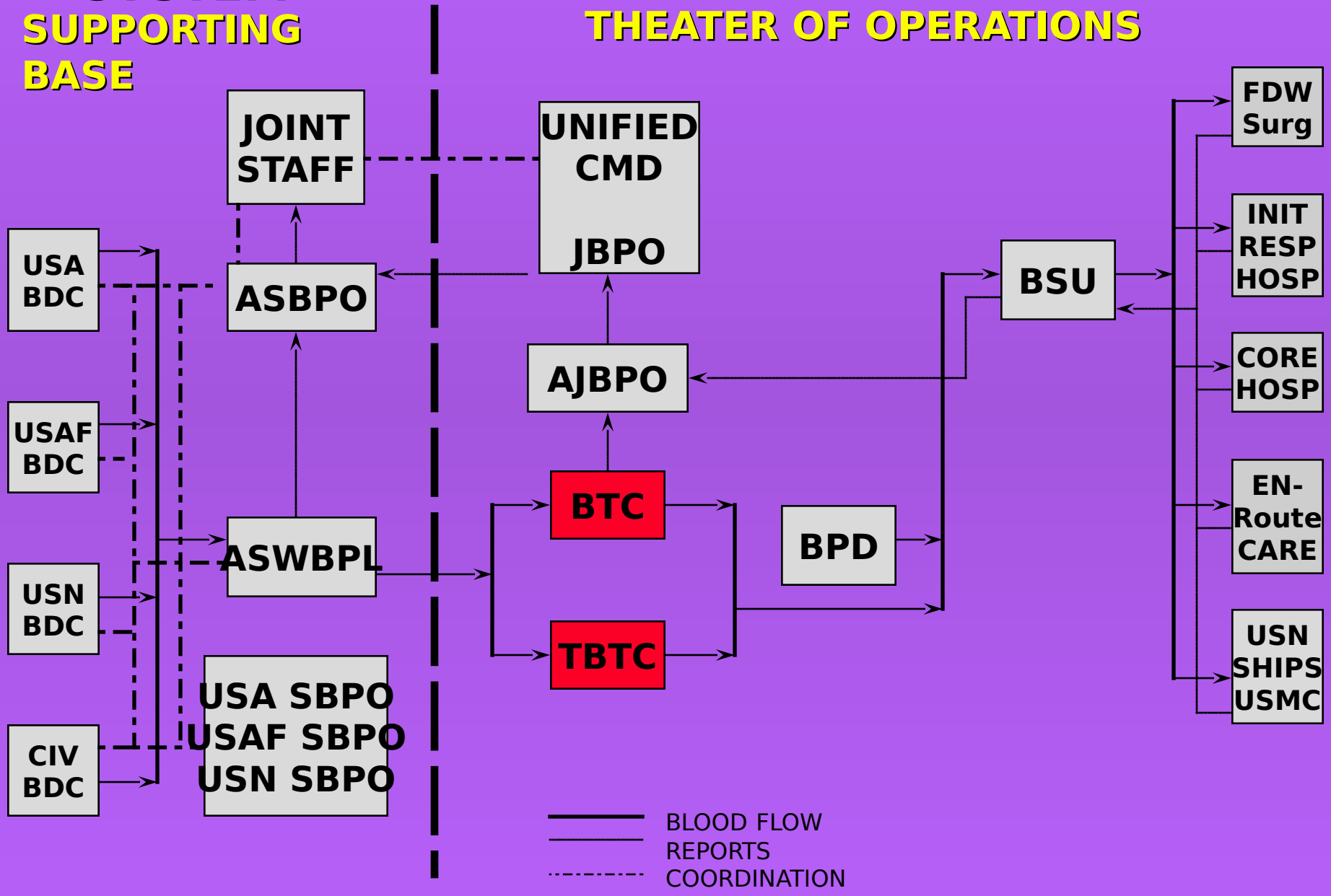
Contingency Storage at McGuire AF

Final Pallet Preparatio n at



Preparing a Box of 30 Ur for Shipment

ARMED SERVICES BLOOD DISTRIBUTION SYSTEM



Blood Transshipment Centers (BTCs)

- USAF Operated
  - Usually Located at a Secured Theater Airfield
  - Supporting Commands May Operate BTCs
- Stores/Ships Up To 7,200 Units Per Day
- Functions
  - Central Receiving Point
  - Inspect Blood, Reice Blood, Store Blood
  - Issue Blood to Blood Supply Units
    - No transportation assets assigned!
  - Send Reports to AJBPO/JBPO

Blood Transhipment Centers

Aviano, Italy

Elmendorf, AK

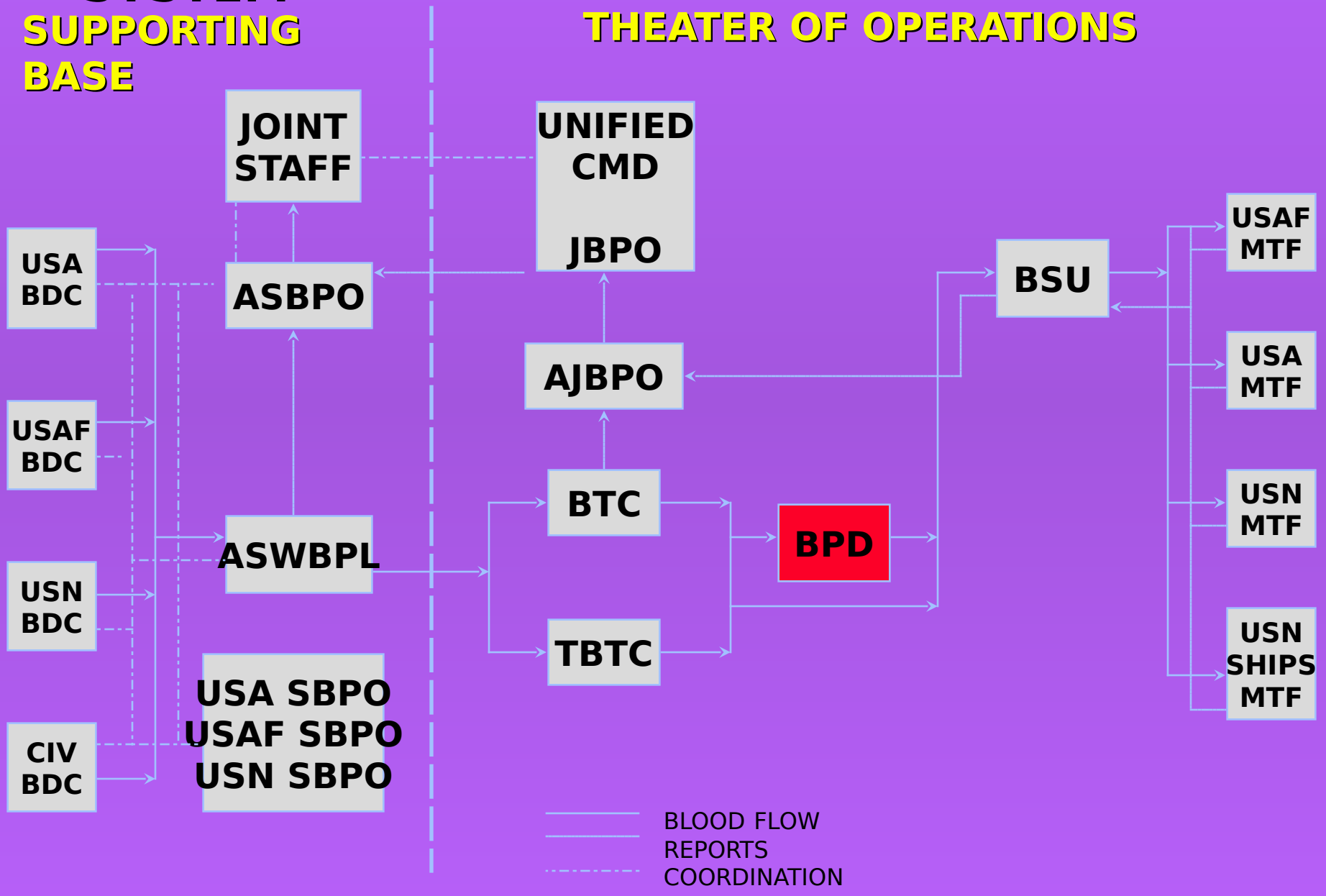
Incirlik, Turkey

Lakenheath, UK

Misawa & Yokota, Japan

Ramstein, Germany

ARMED SERVICES BLOOD DISTRIBUTION SYSTEM



Blood Product Depots (BPD)

- Component Operated / Blood Managed by JBPO
- Function
  - Receive and Store Frozen Blood
  - Deglycerolize Frozen Blood
  - Distribute Frozen and Deglycerolized Blood

- Location
  - USPACOM (48,000)
    - Okinawa, Japan
    - Camp Carroll,
    - Camp Humphreys, ROK
  - USEUCOM (6,000)
    - Sigonella, Italy
- **Total - 65,000 Units**
  - CONUS (11,000)

BPD
at
Okinawa

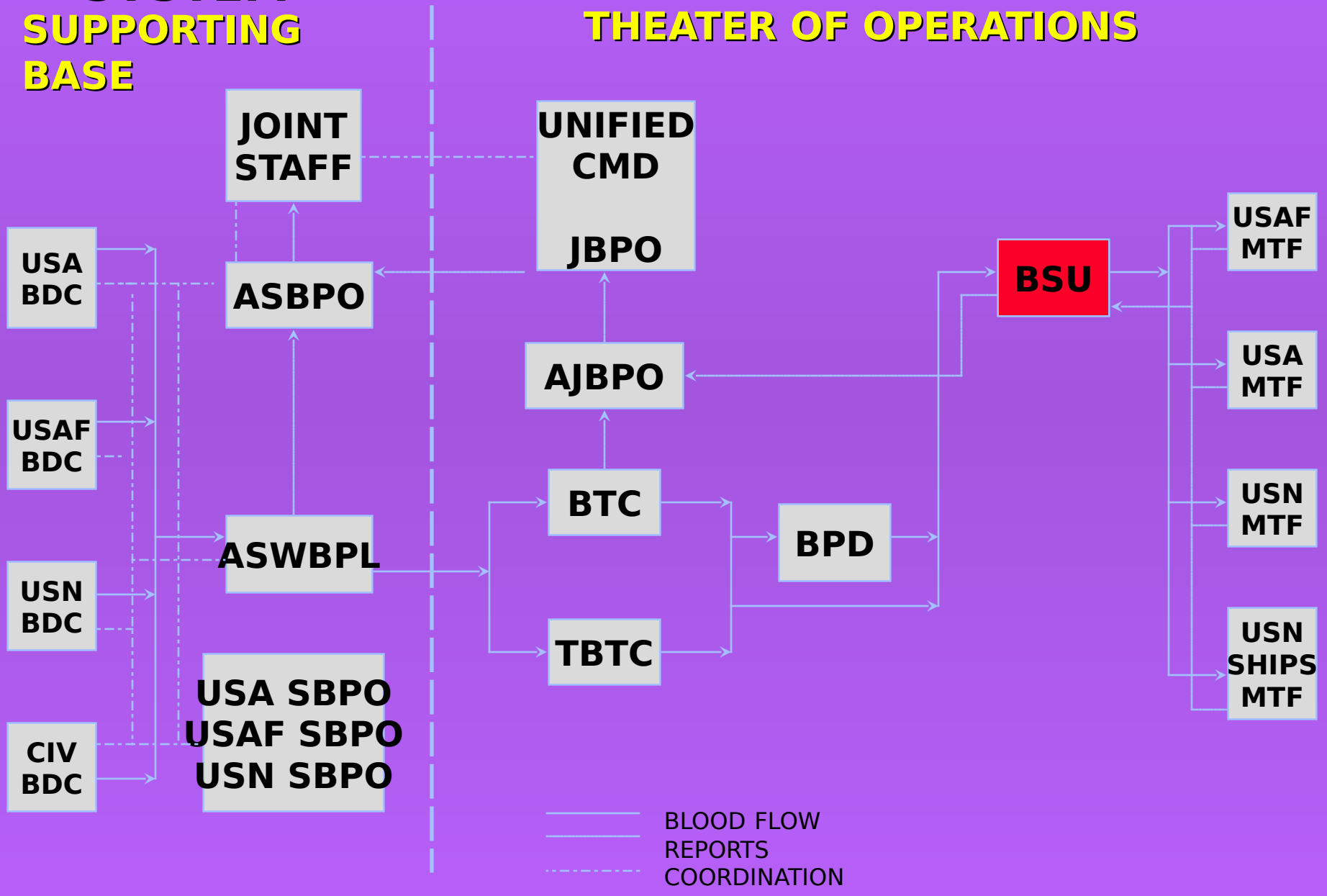
Storage Freezers
(<65°C)
Can hold up to 600 units of FRBCs/freezer

Deglycerolization Cell Washers
One Unit/Machine/Hour
Two Machines/Technician

Frozen Blood Update

- **Deglycerolized Frozen Red Blood Cells**
  - **Shelf-Life 24hrs Peacetime**
  - **3 Days During Contingencies**
- **Extended Shelf-Life With a Closed System**
  - **Thawed Blood Processing System (Automated)**
  - **Glycerolizing Within a Closed System**
- **Frozen Red Cell Expiration - Currently 10 Years**
  - **Expected Extension to 15-20 years**

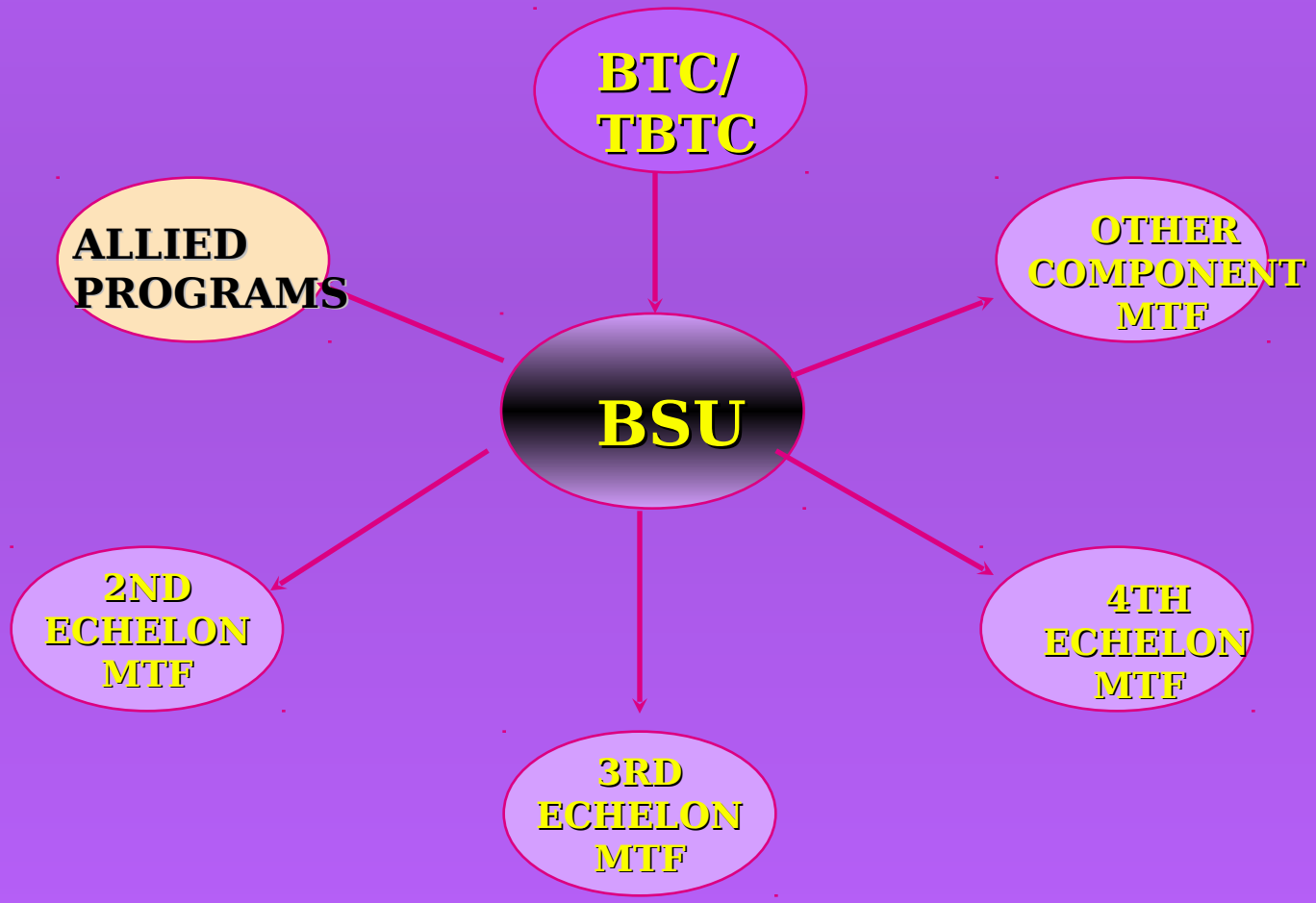
ARMED SERVICES BLOOD DISTRIBUTION SYSTEM



Blood Supply Units (BSU)

- Component Operated
- Functions
  - Receive and Inspect Blood and Blood Products
  - Store and Re-ice Blood Products
    - Army Blood Platoon Stores up to 3600 Units
  - Issue Blood Products to MTFs
  - May Operate a Blood Product Depot
  - May Collect Blood In Emergencies

Component Area Blood Distribution



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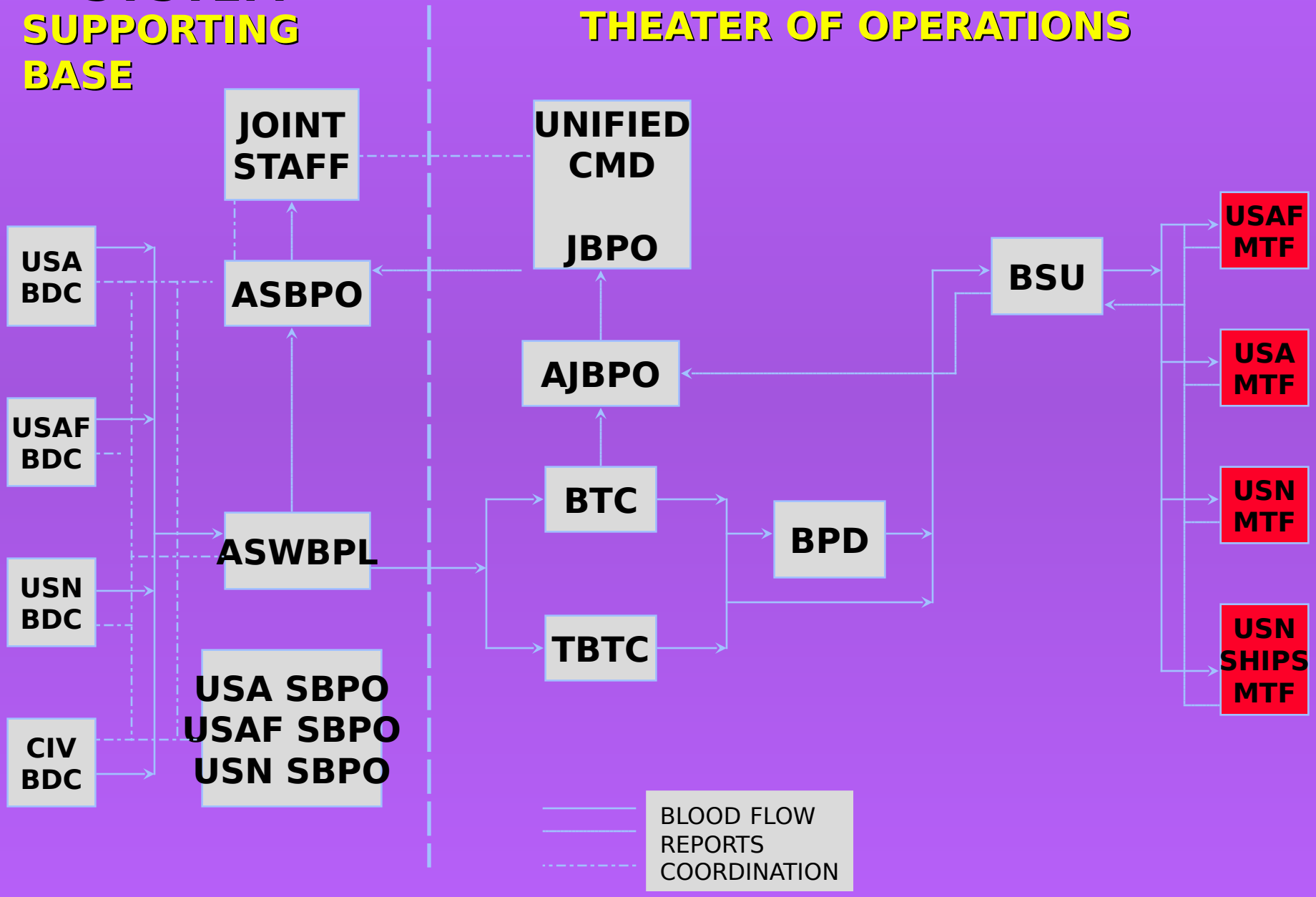
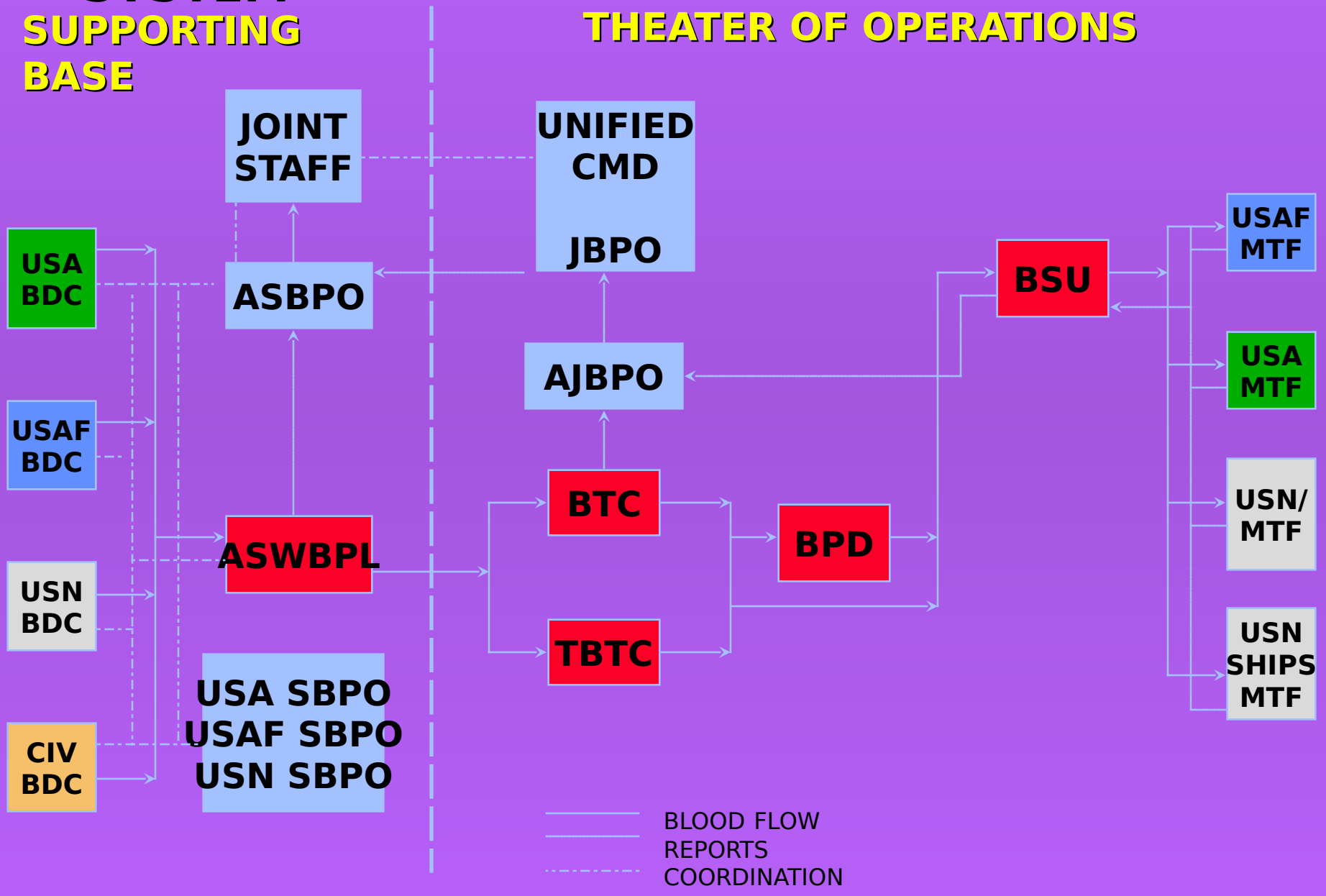


Medical Treatment Facilities (MTF)

- Component Operated
- Functions
  - Receive and Inspect Blood Products
  - Store Blood and Blood Products
  - Crossmatch Blood (3E/4E)
  - Transfuse Blood and Blood Products
  - Store Blood

ARMED SERVICES BLOOD DISTRIBUTION SYSTEM



Research and Development

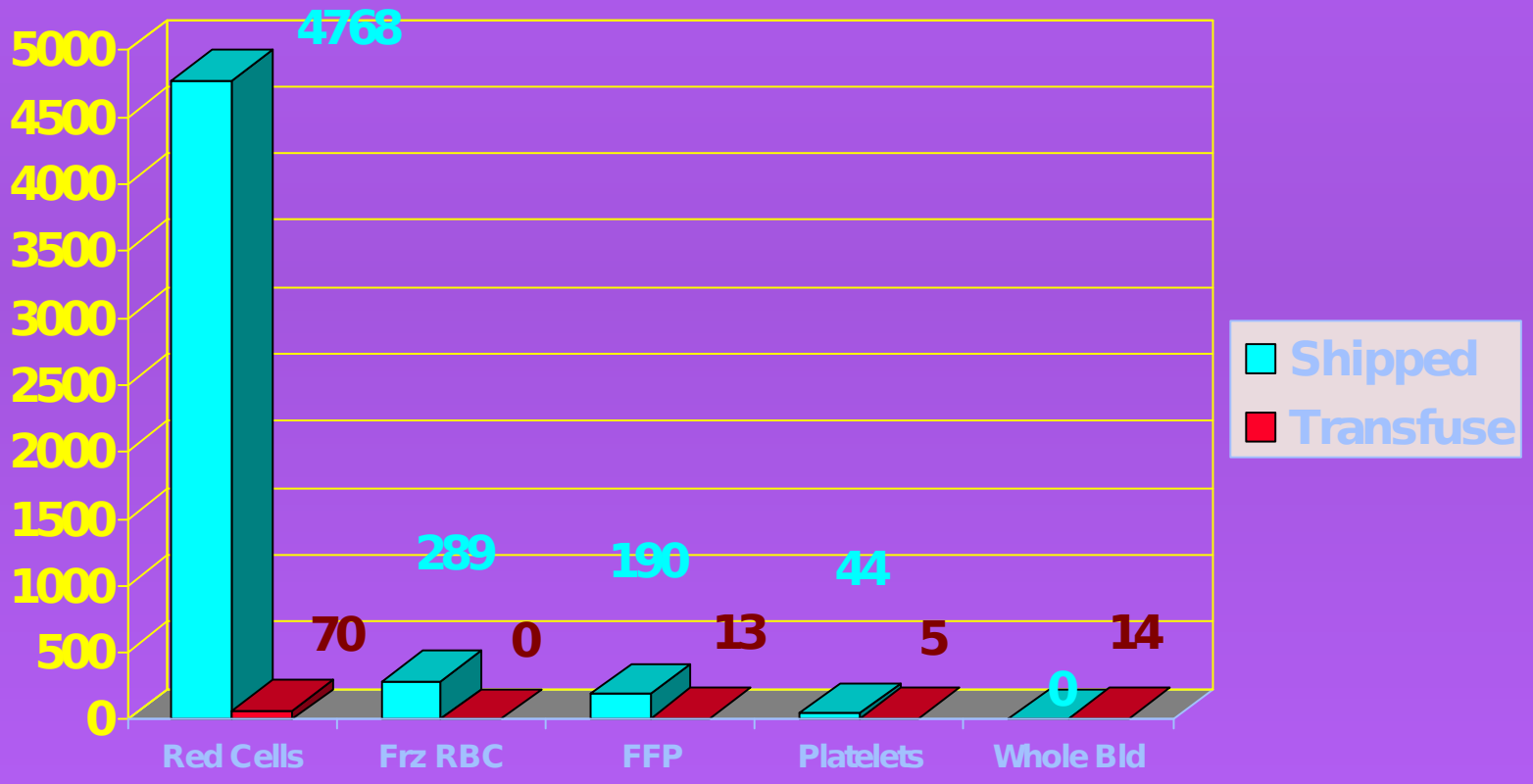
- Thawed Blood Processing System - Automated & Closed System for Deglycerolization of Frozen RBC
- Platelets (Frozen, Lyophilized, Storage Solutions)
- Logistically Supportable and Safer Oxygen Carrier (HBOC)
- Reduce Requirements - Fibrin Glue Bandage/Sealant
- Freeze Dried Plasma
- Longer Shelf Life (10-16 Weeks) for PRBCs

Desert Storm

- **Military BDC Shipments - RBC**
  - **August 1990 - March 1991**
  - **85,535**
- **Civilian Contract Shipments - RBC**
  - **December 1990 - February 1991**
  - **21,004**
- **Total RBC Shipments - 106,539**
- **Total Transfusions - < 2,000**

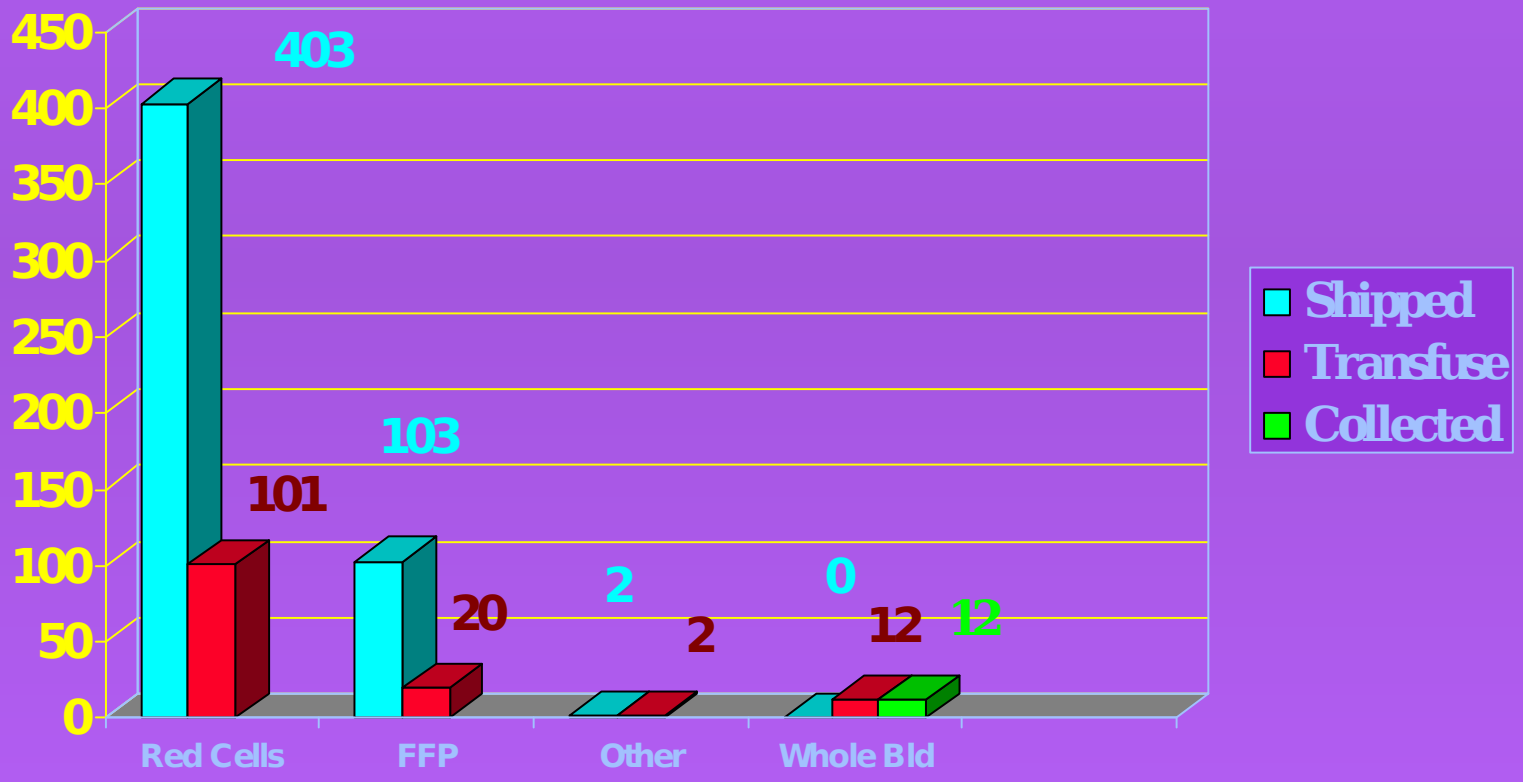
Bosnia - Blood Products

As of September 1999



Kosovo - Blood Products

As of September 1999



Shipboard Blood Banking

Causality Treatment Ship

Hospital Ship

STORAGE OF BLOOD PRODUCTS ON SHIPS

Ship	Deployment	Liquid RBC	Frozen RBC	FFP
LHA	Contingency	-0-	475	20
	Mobilization	350-500	950	40
LHD	Contingency	-0-	665	28
	Mobilization	800-960	1,330	56
T-AH	Contingency	-0-	2,375	100
	Mobilization	2,000	2,850	120

"WALKING" BLOOD BANK

- Use if no other source of red blood cells are available.
  - No time to deglycerolize frozen blood
  - Transshipment of RBCs not possible
- Responsible physician considers risk in "Life or Death" situation.
  - Risk Factors - not tested for infectious diseases
  - Whole blood transfusion (type compatible)
- Need for Platelets.

BLOOD PRODUCT WALKING BLOOD BANK

- TRAIN MEDICAL STAFF TO COLLECT BLOOD
- IDENTIFY POTENTIAL DONORS
  - Blood Drive (six weeks prior to deployment)
  - Request listing of potential donors with ABO/Rh types from Blood Donor Center
  - Obtain signed statement form donor that they are willing to donate in an emergency
- SAVE BLOOD SAMPLES COLLECTED TO BE SENT TO NEAREST MTF FOR TESTING

SETTING UP A SCREENED "WALKING" BLOOD BANK

- Post Blood Drive
  - Request Listing of Eligible Donors
    - test negative for infectious diseases: HBsAg, HBc, HCV, HIV 1/2 Ab, HIV 1 Ag, HTLV 1/2, RPR
    - Acceptable on blood donor history record /high risk behavior/ travel/ exposure to health hazards, etc.
    - ABO Rh types (Group and Type)

SETTING UP A SCREENED "WALKING" BLOOD BANK

- Post Blood Drive (cont.)
  - Request eligible donors sign statement if willing to donate in emergency situation
  - Create data file of eligible donors

ACTIVATING A SCREENED "WALKING" BLOOD BANK

- Identify ABO/Rh type of patient
- Call emergency donors listed on file
- If group and type is unknown
  - call group "O" donors and "pack" RBCs in centrifuge
  - if female (or male with Rh negative on ID Card/Tags) get group "O" Rh type negative
- If no centrifuge, must give Group and Type Specific
- Donor Complete DD572 prior to phlebotomy

PROCESSING BLOOD FROM "WALKING" BLOOD BANK

- Label blood donation record and blood bag w/donor social security number
- Pilot tubes for ABO/Rh test/immediate spin cross match and future infectious disease testing
- Label blood bags with donor's ABO Rh
- Send donor frozen serum to Navy MTF for infectious disease testing
- Send copy of transfusion logs/DD572's to BUMED Navy Blood Program

FROZEN RED BLOOD CELLS

- **BLOOD GROUP “O” ONLY**
- **15 % Rh Negative**
- **Fully tested for Infectious Diseases per industry standards**
- **10 year shelf life**
- **Must be stored at -70^{o}C (or colder)**
- **Transport at -45^{o}C (or colder)**

FROZEN RED BLOOD CELLS

- **Deglycerolization**
  - **Trained Lab Tech / Medical Staff**
- **Deglycerolize One Unit Per Machine Per Hour Per Tech**
- **Must anticipate a need - and get going**
- **Shelf life can be extended to 72 hours if JTF Surgeon approves**
- **If not used, discard. It served its purpose.**

Record Keeping

* Blood Shipments
* Blood Dispositions
* Blood Collections
* Blood Transfusion

Shipboard Blood Banking

- **TFBPO**
  - **CATF Surgeon, Senior MSC, SMO**
- **Duties**
  - **Direct blood procurement, storage, resupply**

Shipboard Blood Banking

- **SMO Duties:**
  - **Ensure storage facilities are in good working order**
  - **Ensure training of personnel in administration, transfusion rxn, handling, thawing**
  - **Maintain QC Program, blood bank SOP's**
  - **Coordinate TAV as part of MRA**
  - **Request blood, maintain inventory**

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This concludes my briefing.

Questions????